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AMERICAN MATHEMATICAL SOCIETY
UNIVERSITY OF MICHIGAN
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Notices

Edited by J. H. CURTISS

ISSUE NO. 23 *APRIL, 1957*

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CALENDAR OF MEETINGS

Note: This Calendar lists all of the meetings which have been approved by the Council up to the date at which this issue of the *Notices* was sent to press. The meeting dates which fall rather far in the future are subject to change. This is particularly true of the meetings to which no numbers have yet been assigned.

Meeting No.	Date	Place	Deadline for Abstracts
536	June 15, 1957	Pullman, Washington	May 2
537	August 26–30, 1957 (62nd Summer Meeting)	University Park, Pennsylvania	July 12
538	October 26, 1957	Washington, D. C.	Sept. 12
	November, 1957	Columbia, Missouri	
	November 29–30, 1957	Coral Gables, Florida	
	January 28–30, 1958 (64th Annual Meeting)	Cincinnati, Ohio	
	November, 1958	Evanston, Illinois	
	November, 1959	Detroit, Michigan	

The *Notices* of the American Mathematical Society is published seven times a year, in February, April, June, August, October, November, and December. Inquiries should be addressed to the American Mathematical Society, Ann Arbor, Michigan, or 190 Hope Street, Providence 6, R. I.

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FIVE HUNDRED THIRTY-THIRD MEETING

New York, New York

April 4–6, 1957

PROGRAM

The five hundred thirty-third meeting of the American Mathematical Society will be held on Thursday, Friday, and Saturday, April 4–6, 1957, at New York University.

A Symposium on Orbit Theory (sponsored by the Society with the aid of the Office of Ordnance Research) will be held on Thursday and Friday. Sessions of the Symposium will be held in the Law Center Auditorium of Vanderbilt Hall on Thursday and Friday at 10:00 A.M. and on Thursday at 2:00 P.M.

By invitation of the Committee to Select Hour Speakers for Eastern Sectional Meetings, Professor Bernard Friedman of New York University will address the Society on Friday at 2:00 P.M. on *Boundary conditions at infinity and virtual eigenvalues* in the Law Center Auditorium, Vanderbilt Hall, and Professor R. V. Kadison of Columbia University will deliver an hour address entitled *A survey of the theory of operator algebras* on Saturday at 2:00 P.M. in the School of Education Auditorium, Education Building.

There will be sessions for contributed papers in the Main Building at 3:15 P.M. on Friday, and at 10:00 A.M. and 3:15 P.M. on Saturday.

A registration desk will be located near the Law Center Auditorium, Vanderbilt Hall, throughout the sessions of the Orbit Theory Symposium and the Society meeting. Maps of the area and lists of restaurants in the vicinity will be available at the registration desk. It does not seem feasible or necessary to list hotels.

The Institute of Mathematical Sciences of New York University will give a tea at 5:00 P.M. on Friday in the Green Room of the East Building.

Professor W. M. Hirsch will be in charge of the Employment Register, which will be maintained in Room 805 of the Main Building from 2:00 P.M. to 5:00 P.M. on Friday and from 9:00 A.M. to 5:00 P.M. on Saturday.

A lounge (Room 766) in the Waverly Building will be available for

informal discussions among mathematicians on Friday afternoon and Saturday.

The Main Building of New York University is at the northeast corner of Washington Square, and Vanderbilt Hall is at the southwest corner. The Education Building is on the east side of Washington Square at the intersection of West 4th Street and Green Street. The East Building is adjacent to the Education Building, with entrance on Green Street between West 4th Street and Washington Place. The Waverly Building adjoins the Main Building on the northeast side and access to Room 766, Waverly Building, is either through the seventh or eighth floors of the Main Building or directly by elevators from the ground floor of the Waverly Building.

Washington Square may be reached by public transportation as follows:

Lexington Avenue (Interborough) Subway (IRT)-Local to Astor Place Station. Walk west on Astor Place to Broadway, then south on Broadway to Waverly Place, and west on Waverly Place to Washington Square.

Seventh Avenue (Interborough) Subway (IRT)-Local to Sheridan Square Station. Walk east on Waverly Place to Washington Square.

Broadway (Brooklyn-Manhattan) Subway (BMT)-Brighton local or Fourth Avenue local to Eighth Street Station. Walk south on Broadway to Waverly Place, then west on Waverly Place to Washington Square.

Sixth or Eighth Avenue (Independent) Subway (IND)-Express to West Fourth Street-Washington Square Station. Walk east on West Fourth Street or Waverly Place to Washington Square.

Fifth Avenue Bus-Busses numbered 2, 3, 5, and 19 to last stop, which is Washington Square.

Mail for those attending the meeting and / or Symposium should be addressed: Care of American Mathematical Society, New York University, New York 3, New York. Telegrams should be addressed: Care of Professor S. C. Lowell, A.E.C. Computing Facility, 25 Waverly Place, New York, New York.

Committee on Arrangements

S. C. Lowell, Chairman
F. W. John
P. D. Lax
R. D. Schafer
H. E. Wahlert
G. B. Whitham

SYMPOSIUM ON ORBIT THEORY

Note: All sessions of the Symposium will take place in the Law Center Auditorium of Vanderbilt Hall.

THURSDAY, 10:00 A.M.

First Session

Professor J. Barkley Rosser of Cornell University will preside. The participants will be welcomed by Colonel G. F. Leist of the Ordnance Corps, Commanding Officer of the Office of Ordnance Research of the U. S. Army. Speakers will be:

Dr. Ernest D. Courant, Physicist, Brookhaven National Laboratory, *Orbit Stability in Particle Accelerators.*

Professor Stanislaw Olbert of the Massachusetts Institute of Technology, *Motion of Cosmic-Ray Particles in Galactic Magnetic Fields.*

Dr. Willard H. Bennett, Head, Atomic Physics Branch, U. S. Naval Research Laboratory, *Störmer Orbits.*

Discussion will be led by Professor Thomas Gold of Harvard University and Professor Bruno Rossi of Massachusetts Institute of Technology.

THURSDAY, 2:00 P.M.

Second Session

Professor Frank J. Murray of Columbia University will preside. Speakers will be:

Professor Paul Herget of the University of Cincinnati, Director of the Cincinnati Observatory, Consultant to Project Vangard on the Reduction of Orbital Data for the Artificial Earth Satellite, *General Theory of Oblateness Perturbations.*

Professor Fred L. Whipple of Harvard University, Director of the Smithsonian Astrophysical Observatory, Director of the Optical Tracking Program for the Artificial Earth Satellite, *Fundamental Problems in Predicting Positions of Artificial Earth Satellites.*

Dr. Krafft A. Ehricke, Chief of Preliminary Design and Systems Analysis for the Convair Division of the General Dynamics Corporation, Chairman of the American Rocket Society Space Flight Technical Committee, *Cis-lunar Orbits.*

Dr. J. W. Siry, Head of the Theory and Analysis Branch of Project Vangard of the U. S. Naval Research Laboratory, *Satellite Launching Vehicle Trajectories.*

Discussion will be led by Dr. Homer E. Newell, Director of the Sci-

ence Program of Project Vangard of the U.S. Naval Research Laboratory and Member of the Technical Panel of the Artificial Earth Satellite Program of the International Geophysical Year.

FRIDAY, 10:00 A.M.

Third Session

Professor Rudolph E. Langer of the University of Wisconsin, Director of the Mathematics Research Center of the U. S. Army, will preside. Speakers will be:

Professor W. J. Eckert of Columbia University, Director of the I. B. M. Watson Scientific Computing Laboratory of Columbia University, *Numerical Determination of Precise Orbits.*

Professor Dirk Brouwer of Yale University, Director of the Observatory of Yale University, *Comments on General Theories of Planetary Orbits.*

Professor Carlos Graef Fernández of the University of Mexico, Director of the Institute of Physics of the University of Mexico, *Relativistic Orbits in the Central Field of Birkhoff's Theory of Gravitation.*

Discussion will be led by Professor Jurgen Moser of the Institute of Mathematical Sciences of New York University.

Program Committee for the Symposium

Garrett Birkhoff
W. J. Eckert
Philip Hartman
Paul Herget
H. E. Newell
J. B. Rosser, Chairman

PROGRAM OF THE SESSIONS
(Time limit for each contributed paper, 10 minutes)

FRIDAY, 2:00 P.M.

General Session, Law Center Auditorium, Vanderbilt Hall

Boundary conditions at infinity and virtual eigenvalues (One hour)
Professor Bernard Friedman, New York University

FRIDAY 3:15 P.M.

Session on Analysis, Room 806, Main Building

(1) On the space of completely continuous operators
Professor Robert Schatten, University of Kansas

(2) Subalgebras of C^* algebras
Dr. R. T. Prosser, Massachusetts Institute of Technology

(3) The weak completion of Banach spaces
Professor J. W. Brace, University of Maryland

(4) Compatible topologies on Riesz spaces. Preliminary report
Mr. Hugh Gordon, Columbia University

(5) Measures on Boolean σ-algebras
Professor L. J. Heider, Marquette University

(6) Distributions and Lebesgue area
Dr. Klaus Krickeberg, University of Wisconsin and University of Würzburg

(7) A completeness theorem
Dr. P. J. Koosis, New York University

(8) On estimating partial differential operators. II
Mr. Martin Schechter, New York University

Session on Algebra and Theory of Numbers, Room 808, Main Building

(9) On free products of groups
Mr. Abraham Karrass, Brooklyn College, and Mr. Donald Solitar, Brooklyn College and New York University

(10) Groups defined by two relations
Professor H. S. M. Coxeter, University of Toronto

(11) Lattice points in n-spheres
Mr. Fred Supnick, City College of New York

(12) Some theorems about $p_r(n)$
Dr. Morris Newman, National Bureau of Standards, Washington, D. C.

(13) On subdeterminants of doubly stochastic matrices
Dr. M. D. Marcus, National Bureau of Standards, Washington, D. C. and University of British Columbia

(14) Singular values of a matrix
Dr. A. R. Amir-Moez, Queens College, and Professor Alfred Horn, University of California, Los Angeles

(15) Sets of matrices with all real eigenvalues
Dr. Chandler Davis, Columbia University and New School for Social Research

Session on Applied Mathematics, Room 809, Main Building

(16) On sonic limit lines in the hodograph method
Professor G. S. S. Ludford and Mr. S. H. Schot, University of Maryland

(17) On the solutions of compressible flow past a wedge
Dr. Abolghassem Ghaffari, National Bureau of Standards, Washington, D. C.

(18) Non-existence of continuous transonic flows past profiles. III. Preliminary report
Dr. Cathleen S. Morawetz, New York University

(19) Computation of the exact solution of a system of linear equations
Professor I. F. Ritter, New York University

(20) On the numerical solution of Poisson's equation in an elliptic region
Miss Joanna Wood-Schot, David Taylor Model Basin
(Introduced by Dr. R. M. Davis)

(21) Difference equations of polyharmonic type
Professor R. J. Duffin and Mr. E. P. Shelly, Carnegie Institute of Technology

(22) Multiple-valued solutions of the Laplace difference equation
Dr. Charles Saltzer, Case Institute of Technology

(23) Social choice functions and simple games
Professor J. H. Blau, Antioch College

SATURDAY, 10:00 A.M.

Session on Analysis, Room 806, Main Building

(24) The Riemann-Hilbert problem for finite Riemann surfaces. Preliminary report
Mr. Walter Koppelman, New York University

(25) Deficient values which are also asymptotic. II
Professor Albert Edrei, Syracuse University, and Professor W. H. J. Fuchs, Cornell University

(26) A general solution for a class of approximation problems
Professor Annette Sinclair, Southern Illinois University

(27) The Fatou theorem for functions harmonic in a half space
Professor F. W. Gehring, University of Michigan

(28) Pseudoanalytic functions with characteristic coefficients in L_p
Mr. Ivan Polonsky, Queens College and New York University

(29) On relations between Borel's and Cesàro's methods of summation
Professor W. B. Jurkat, Ohio State University

(30) Some Tauberian lemmas
Professor Albert Wilansky, Lehigh University

(31) A convolution theorem for general unitary transforms
Professor Charles Fox, McGill University

(32) An application of the Gauss multiplication theorem
Professor M. S. Klamkin, Avco Research and Advanced Development Division, Lawrence, Massachusetts and Polytechnic Institute of Brooklyn

Session on Algebra and Theory of Numbers, Room 808, Main Building

(33) The homomorphism theorems for partial algebras
Professor G. B. Preston, Tulane University
(Introduced by Professor A. H. Clifford)

(34) Algebras with unique minimal faithful representations
Professor D. W. Wall, University of North Carolina

(35) A coset-like decomposition relative to certain rings of operators
Dr. Malcolm Goldman, University of Michigan

(36) Maximality and ultracompleteness in normed modules
Mr. I. B. Fleischer, Bell Telephone Laboratories, Murray Hill, New Jersey

(37) Invariant Wedderburn factors
Dr. E. J. Taft, Columbia University

(38) On a formula of Frobenius
Mr. Bruno Harris, Yale University

(39) Coverings of algebraic curves
Professor S. S. Abhyankar, Columbia University

Session on Topology, Room 809, Main Building

(40) Continuous extensions and selections for paraconvex sets
Professor E. A. Michael, Institute for Advanced Study

(41) Almost homogeneous spaces
Dr. F. J. Wagner, Midwest Research Institute

(42) Certain subgroups of the homotopy groups
Professor M. L. Curtis and Professor M. K. Fort, Jr., University of Georgia

(43) Homotopy groups of one-dimensional spaces
Professor M. L. Curtis and Professor M. K. Fort, Jr., University of Georgia

(44) On the existence of a continuum of critical points
Dr. J. P. Roth, Institute for Advanced Study and International Business Machines Research Center, Poughkeepsie, New York

(45) Axioms for local homology
Professor T. R. Brahana, University of Georgia

SATURDAY, 2:00 P.M.

General Session, School of Education Auditorium, Education Building

A survey of the theory of operator algebras (One hour)
Professor R. V. Kadison, Columbia University

SATURDAY, 3:15 P.M.

Session on Statistics and Probability, Analysis, and Applied Mathematics, Room 806, Main Building

(46) Computable probability spaces
Professor Bayard Rankin, Case Institute of Technology

(47) The explicit solution with given integral values of the reduced wave equation
Dr. O. G. Owens, Sandia Corporation, Albuquerque, New Mexico

(48) An asymptotic Huygens' principle for nonlinear equations. Preliminary report
Professor P. D. Lax, New York University

(49) The reduced wave equation in a medium with a variable index of refraction
Mr. Willard Miranker, New York University
(Introduced by Professor Lipman Bers)

(50) Eigenvalues and eigenvectors of general matrices
Dr. M. A. Hyman, Remington Rand Univac, Philadelphia, Pennsylvania

(51) Bounds for the displacement of free and supported plates
Professor L. E. Payne and Professor H. F. Weinberger, University of Maryland

Session on Geometry, Room 808, Main Building

(52) Length preserving transformations
Dr. D. J. Newman, AVCO, Research and Advanced Development Division, Newton Highlands, Massachusetts
(Introduced by Professor M. S. Klamkin)

(53) On two non-equivalent approaches to the study of vertices in E^3
Dr. Donald Greenspan, Hughes Aircraft Company, Culver City, California

(54) Differential representations of homotopy
Professor Melvin Hausner, Stevens Institute of Technology

(55) Convex hulls of a class of closed space curves. Preliminary report

Dr. Z. A. Melzak, University of Michigan

(56) Isometry of Riemannian submanifolds. I

Dr. Wilhelm Klingenberg, Institute for Advanced Study

(57) On G. Bol's proof of Carathéodory's conjecture. Preliminary report

Mrs. Tilla S. Klotz, New York University

(58) A maximum-minimum problem connected with trees

Dr. E. N. Gilbert and Dr. H. O. Pollak, Bell Telephone Laboratories, Murray Hill, New Jersey

Session for Late Papers, Room 809, Main Building

SUPPLEMENTARY PROGRAM
(To be presented by title)

(59) On an analogue of Cohen's theorem for non-commutative local rings

Professor E. H. Batho, University of Rochester

(60) Concerning the existence and properties of the Lane integral

Mr. R. C. Bzoch, Illinois Institute of Technology
(Introduced by Professor Pasquale Porcelli)

(61) Uniqueness in the Cauchy problem for partial differential equations

Professor A. P. Calderon, Massachusetts Institute of Technology

(62) Some fundamental regions for which forms of dimension minus four are Eisenstein series

Professor Harvey Cohn, Washington University

(63) Recursion relations for parabolic cylinder functions

Mr. J. R. Foote, New York University and University of Oklahoma
(Introduced by Professor K. O. Friedrichs)

(64) An asymptotic method for free convection past a vertical plate

Mr. J. R. Foote, New York University and University of Oklahoma
(Introduced by Professor K. O. Friedrichs)

(65) On completely (m, n)-compact spaces

Professor I. S. Gál, Cornell University

(66) On sets of linear differential equations with dependent solutions
Dr. Lawrence Goldman, Columbia University, and Professor A. P. Hillman, State College of Washington

(67) The structure of certain Jordan algebras
Mr. Bruno Harris, Yale University

(68) The random functions of cosmic-ray cascades
Dr. T. E. Harris, Rand Corporation, Santa Monica, California

(69) On splitting criteria
Professor L. Aileen Hostinsky, Pennsylvania State University

(70) Finding complex zeros by interpolation. II
Dr. M. A. Hyman, Remington Rand Univac, Philadelphia, Pennsylvania

(71) Isometry of Riemannian submanifolds. II
Dr. Wilhelm Klingenberg, Institute for Advanced Study

(72) The realization of point-isomorphisms
Dr. Dorothy Maharam, Manchester University

(73) Linear differential equations and functional analysis. I
Professor J. L. Massera and Dr. J. J. Schäffer, Universidad de Montevideo

(74) Linear differential equations and functional analysis. II
Professor J. L. Massera and Dr. J. J. Schäffer, Universidad de Montevideo

(75) Linear differential equations and functional analysis. III
Professor J. L. Massera and Dr. J. J. Schäffer, Universidad de Montevideo

(76) Linear differential equations and functional analysis. IV
Professor J. L. Massera and Dr. J. J. Schäffer, Universidad de Montevideo

(77) Homology of symmetric products of spheres. Preliminary report
Mr. Bert Mendelson, Columbia University

(78) Some algebraic properties of non-standard models for number theory
Dr. Elliott Mendelson, Harvard University

(79) Gauss's theorem
Professor L. M. Milne-Thomson, Brown University

(80) Lower bounds for the first eigenvalue of elliptic equations
Professor M. H. Protter, University of California, Berkeley

(81) On some property of a function satisfying Poisson's equation
Professor Valdemars Punga, Rensselaer Polytechnic Institute, Hartford Graduate Center

(82) A theorem on continued fractions
Professor Irving Reiner, University of Illinois

(83) The multiplicity function of an equation
Professor I. F. Ritter, New York University

(84) A spectral mapping theorem for the essential spectra of ordinary linear differential operators
Dr. G. C. Rota, New York University

(85) Extension theory of non-self-adjoint differential operators in B-spaces
Dr. G. C. Rota, New York University

(86) Remarks on Moebius transformations
Dr. H. W. E. Schwerdtfeger, University of Melbourne

(87) The Wedderburn principal theorem for Jordan algebras
Dr. E. J. Taft, Columbia University

(88) Some generalizations of Burnside's theorem
Professor N. A. Wiegmann, Catholic University

(89) Ideals of the affine near-ring
Professor K. G. Wolfson, Rutgers University

(90) A generalization of H^*-algebras
Professor K. G. Wolfson, Rutgers University

R. D. Schafer
Associate Secretary

Storrs, Connecticut
February 20, 1957

FIVE HUNDRED THIRTY-FOURTH MEETING

Chicago, Illinois
April 19–20, 1957

PROGRAM

The five hundred thirty-fourth meeting of the American Mathematical Society will be held at the University of Chicago, Chicago, Illinois, on Friday and Saturday, April 19–20, 1957. *All sessions will be held in Eckhart Hall.*

Registration will be in the Common Room on the second floor of Eckhart Hall, beginning at 9:00 A.M., Friday.

There will be a meeting of the Council on Friday at 5:00 P.M. in Room 316.

There will be a meeting of the Policy Committee on Saturday at 9:00 A.M. in Room 316.

By invitation of the Committee to Select Hour Speakers for Western Sectional Meetings, Professor René Thom of the University of Chicago and the University of Strasbourg will address the Society on the topic *Topology of differentiable function spaces*. Professor Thom's lecture will be held in Room 133 at 2:00 P.M. on Friday, April 19.

Sessions for the presentation of contributed papers will be held at 10:00 A.M. on Friday and Saturday, and 3:15 P.M. on Friday.

There will be a special session on Saturday for the presentation of papers which failed to meet the deadline. Further details will be available at the registration desk. (If a contributing author fails to find his paper on the program, he may conclude that his abstract did not meet the deadline.)

There will be a tea in the Common Room of Eckhart Hall starting at 4:15 P.M. on Friday.

The facilities of Hutchinson Commons, a dining hall directly across from Eckhart Hall, will be available to members of the Society and guests for all meals.

The following hotels have agreed to accommodate those members of the Society making reservations in advance:

in the University district

	Single	Double
Shoreland Hotel 5454 South Shore Drive	$7.00 up	$9.00 up
Del Prado Hotel 5307 South Hyde Park Blvd.	7.00–11.00	9.00–13.00
Hotels Windermere 1642 East 56th Street	6.50–8.50	8.50–11.00
Hotel Broadview 5400 South Hyde Park Blvd.	4.00–6.00	6.00–8.00
Hotel Miramar 6218 South Woodlawn	3.50–5.50	5.00–7.00
Hyde Park Y. M. C. A. 1400 East 53rd Street	2.25	
in the Loop district		
The Conrad Hilton	6.50–10.00	12.00 up

Reservations should be made directly with the hotel.

Eckhart Hall is located at the corner of 58th Street and University Avenue. It may be reached from the Loop district either via the Illinois Central Electric Train, in which case one leaves the train at 57th Street and walks west, or via the Jackson Park Elevated Train, in which case one leaves the train at University Avenue and walks north.

Mail and telegrams for those attending the meeting should be addressed: Care of the Department of Mathematics, Eckhart Hall, Room 313, University of Chicago, Chicago 37, Illinois.

PROGRAM OF THE SESSIONS

(Time limit for each contributed paper, 10 minutes)

FRIDAY, 10:00 A.M.

Session on Analysis, Room 133

(1) Asymptotic behavior of solutions of elliptic equations
Mr. N. G. Meyers, Indiana University

(2) Existence of cycles for weakly nonlinear real differential systems containing differences
Mr. W. R. Fuller, Purdue University

(3) Analytic almost periodic functions in a sector
Dr. Karel deLeeuw, University of Wisconsin

(4) A generalization of Lommel polynomials
Dr. A. M. Chak, Duke University

(5) Convolution transforms of almost periodic functions
Dr. R. R. Goldberg, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

(6) Remark on a result of Utz
Dr. G. U. Brauer, University of Minnesota

(7) Subalgebras of group algebras. Preliminary report
Mr. A. B. Simon, Tulane University

Session on Algebra, Room 202

(8) *D*-representation of semigroups
Dr. M. P. Schützenberger, Massachusetts Institute of Technology

(9) On the radical of a modular group algebra
Professor W. E. Deskins, Michigan State University

(10) Axiomatic approach to cohomology theory of finite groups
Mr. D. S. Rim and Professor George Whaples, Indiana University

(11) On Hölder groups
Professor F. B. Wright, Tulane University

(12) Normal extensions in which every element with non-zero trace is a normal basis element. II
Professor C. C. Faith, Michigan State University

(13) Complete homomorphisms of complete lattices
Professor Philip Dwinger, Purdue University

(14) Quadratic forms and linear inequalities
Professor J. W. Gaddum, Michigan State University

(15) The lucky number theorem
Professor D. Hawkins and Professor W. E. Briggs, University of Colorado

FRIDAY, 2:00 P.M.

General Session, Room 133

Topology of differentiable function spaces (One hour)
Professor René Thom, University of Chicago and the University of Strasbourg

FRIDAY, 3:15 P.M.

Session on Topology, Room 133

(16) A primitive hyperalgebra
Dr. Edward Halpern, University of Michigan

(17) An axiomatic characterization of the reduced homology theory
Mr. Patrick Shanahan, Indiana University

(18) On one-parameter transformation groups in the plane
Professor P. S. Mostert, Tulane University

(19) On complete collectionwise normality and paracompactness
Dr. L. F. McAuley, University of Wisconsin

(20) Some generalizations of full normality. II
Dr. M. J. Mansfield, Purdue University

(21) On the relatively compact subsets of a space
Dr. H. H. Corson, Tulane University

SATURDAY, 10:00 A.M.

Session on Analysis, Room 133

(22) Singular points of exact differential equations
Professor Diran Sarafyan, Lamar State College

(23) On quasiconformal mappings
Dr. Heinz Renggli, Tulane University
(Introduced by Professor B. J. Pettis)

(24) Functions with generalized gradient and generalized surfaces
Professor W. H. Fleming, Purdue University

(25) Differential equations involving a parametric function
Professor R. H. Cameron, University of Minnesota

(26) Continuous solutions of some functional equations on a topological group
Professor J. H. B. Kemperman, Purdue University

(27) Mathematics and the first law of thermodynamics
Professor M. Z. Krzywoblocki, University of Illinois

Special session for late papers, Room 202

SUPPLEMENTARY PROGRAM
(To be presented by title)

(28) Real functions on spaces with homeomorphisms of even period
Professor D. G. Bourgin, University of Illinois

(29) Some fixed point theorems
Professor D. G. Bourgin, University of Illinois

(30) Ideals and states in C^*-algebras
Dr. W. F. Darsow, DePaul University

(31) An exact sequence
Dr. Edward Halpern, University of Michigan

(32) An asymptotic expansion concerning the Smirnov test
Professor J. H. B. Kemperman, Purdue University

(33) Some generalizations of full normality. I
Dr. M. J. Mansfield, Purdue University

(34) Universal completeness. I
Professor Hugo Ribeiro, University of Nebraska

(35) On relatively complete fields
Mr. D. S. Rim, Indiana University

(36) Jordan homomorphisms and right alternative rings
Professor M. F. Smiley, State University of Iowa

J. W. T. Youngs
Associate Secretary

Bloomington, Indiana
February 28, 1957

FIVE HUNDRED THIRTY-FIFTH MEETING

Berkeley, California
April 20, 1957

PROGRAM

The five hundred thirty-fifth meeting of the American Mathematical Society will be held on Saturday, April 20, 1957, at the University of California in Berkeley.

By invitation of the Committee to Select Hour Speakers for Far Western Sectional Meetings, Professor A. L. Whiteman of the University of Southern California will address the Society on *Recent developments in the theory of cyclotomy* at 2:00 P.M. in Room 155, Dwinelle Hall.

Sessions for contributed papers will be held at 10:00 A.M. and 3:15 P.M. in Rooms 111 and 155, Dwinelle Hall. In addition, Rooms 15, 110, 123, and 125, Dwinelle Hall, have been reserved for informal gatherings of those in attendance. Registration will take place in the front lobby of Dwinelle Hall. Tickets will be sold at the Registration Desk for lunch at the Men's Faculty Club at 12:00 noon, at a cost of $1.00 each.

Accommodations are available at several motels on University Avenue, and at the Shattuck and Durant Hotels. The hotels are within walking distance of the campus.

Berkeley is served by the Southern Pacific and Santa Fe railroads; from each depot, a bus may be taken to the campus. If one arrives in Oakland on a train which does not continue to (and did not pass through) Berkeley, he should disembark at the main station and take a bus to Berkeley. From the Oakland airport, a limousine may be taken to the center of town, and thence a bus to Berkeley. If one arrives in San Francisco, he should make his way to the East Bay Terminal (from the San Francisco Airport, by limousine followed by taxi), and there take an "F" train to Berkeley, alighting at the corner of University and Shattuck.

PROGRAM OF THE SESSIONS
(Time limit for each contributed paper, 10 minutes)

SATURDAY, 10:00 A.M.

Session on Geometry and Topology, Room 111, Dwinelle Hall

(1) On Riemannian connections
Mr. C. E. Watts, University of California, Berkeley

(2) Differential-geometric operations in rings
Professor Albert Nijenhuis, University of Washington

(3) Monotone mappings of manifolds. II
Professor R. L. Wilder, University of Michigan and University of California, Los Angeles

(4) On invariant sets
Dr. Anatole Beck, Tulane University

(5) A theorem on equidistribution in compact groups
Dr. Gilbert Helmberg, University of Washington
(Introduced by Professor V. L. Klee, Jr.)

(6) Complements in topological lattices
Dr. L. W. Anderson, University of Oregon

Session on Analysis, Applied Mathematics, Statistics and Probability, Room 155, Dwinelle Hall

(7) Non-tangential limits of subharmonic functions
Professor E. B. Tolsted, Pomona College

(8) Linear measures of sets of the Cantor type
Professor T. J. McMinn, University of Washington

(9) A uniqueness theorem on minimal surfaces in cylindrical coordinates
Professor J. C. C. Nitsche, University of Minnesota

(10) On a theorem of Hurwitz-Radon and certain integral estimates for partial differential operators
Dr. H. O. Cordes, University of Southern California
(Introduced by Professor V. L. Klee, Jr.)

(11) Additive functionals of a Markov process
Professor R. K. Getoor, University of Washington

(12) Estimation of the location of a change of parameter. Preliminary report
Professor Herman Rubin, University of Oregon

(13) On the generalized radiation problem of A. Weinstein
Dr. H. M. Lieberstein, University of Maryland and Ramo-Wooldridge Corporation, Los Angeles, California

(14) An implicit finite difference approximation to vibration problems in two space variables
Dr. S. D. Conte, Ramo-Wooldridge Corporation, Los Angeles, California

SATURDAY, 2:00 P.M.

General Session, Room 155, Dwinelle Hall

Recent developments in the theory of cyclotomy (One hour)
Professor A. L. Whiteman, University of Southern California

SATURDAY, 3:15 P.M.

Session on Algebra and Theory of Numbers, Logic and Foundations, Room 111, Dwinelle Hall

(15) Elimination of quantifiers in the theory of generalized products
Dr. Solomon Feferman, Stanford University, and Professor R. L. Vaught, University of Washington and University of Amsterdam

(16) On positive classes of relational systems and algebras
Professor R. C. Lyndon, University of California, Berkeley, and University of Michigan

(17) Automorphisms of monomial groups
Professor C. V. Holmes, San Diego State College

(18) On statements of Poincaré and Schlesinger on linear partial differential equations
Dr. Lawrence Goldman, Columbia University, and Professor A. P. Hillman, State College of Washington

(19) Note on normal numbers
Professor C. T. Long, State College of Washington

(20) On a theorem of van der Corput on uniform distribution
Professor W. J. Coles, University of Utah

Session on Analysis, Room 155, Dwinelle Hall

(21) A maximum modulus property of maximal subalgebras
Professor Paul Civin, University of Oregon

(22) Multiplicity of spectral measures
Professor W. G. Bade, University of California, Berkeley

(23) A proof of Rellich's theorem for normal operators
Professor J. B. Butler, Jr., University of Washington

(24) Conditions for the Toeplitz summability of all powers of a bounded real sequence
Professor C. J. A. Halberg, Jr., and Professor H. G. Tucker, University of California, Riverside

(25) The Tauberian gap theorem for Taylor's method
Professor Werner Meyer-Koenig, University of Cincinnati, and Professor Karl Zeller, Wayne State University

(26) Dissipative operators and dissipative hyperbolic systems
Professor R. S. Phillips, University of Southern California

(27) A family of hyperbolic equations and the Cauchy problem for the wave equation
Mr. J. S. Maybee, University of Southern California

(28) A generalization of the semigroups of stable distributions of P. Levy
Dr. A. V. Balakrishnan, University of Southern California

SUPPLEMENTARY PROGRAM
(Tc be presented by title)

(29) On unbounded finitely additive measures
Professor W. G. Bade, University of California, Berkeley

(30) Asymptotic distribution of eigenvalues for the lower part of the Schrödinger operator spectrum. II
Professor F. H. Brownell, University of Washington

(31) Model-theoretic and decidability theorems concerning generalized products
Dr. Solomon Feferman, Stanford University, and Professor R. L. Vaught, University of Washington and University of Amsterd

(32) On positive formulas in the predicate logic
Professor R. C. Lyndon, University of California, Berkeley, and University of Michigan

(33) Generalized weakly standard rings
Professor R. L. San Soucie, University of Oregon

(34) Completeness in semi-lattices
Dr. L. E. Ward, Jr., U.S. Naval Ordnance Test Station, Chin Lake, California

V. L. Klee, Jr.
Associate Secretary

Seattle, Washington
February 26, 1957

PRELIMINARY ANNOUNCEMENT OF MEETING

FIVE HUNDRED THIRTY-SIXTH MEETING

Pullman, Washington
June 15, 1957

The five hundred thirty-sixth meeting of the American Mathematical Society will be held on Saturday, June 15, 1957 at the State College of Washington. A meeting of the Mathematical Association of America will be held on Friday afternoon, June 14. There will be a business meeting of the Association on Friday evening.

By invitation of the Committee to Select Hour Speakers for Far Western Sectional Meetings, Professor M. M. Day of the University of Illinois will address the Society on *Rotundity and smoothness*.

Registration headquarters will be on the second floor of the Compton Union Building, from Friday morning, June 14, to Saturday afternoon, June 15.

The hour address and the sessions for contributed papers will be in Todd Hall.

Dormitory accommodations will be available at $2.00 per person per night, beginning Thursday evening, June 13. Food service will be provided at the Compton Union Building from breakfast on June 14 to dinner on June 15. There will be a dinner Friday evening, June 14, at the Compton Union Building costing $2.50.

For those desiring hotel or motel reservations, the following are listed with rates for single and double rooms. Reservations should be made directly to these hotels or motels.

	Single	Double
Washington Hotel	$4.00–$5.00	$6.00–$7.50
Hillside Motel	$4.00	$6.00–$7.00 (breakfast included)
Hilltop Motel	$4.00	$7.00–$8.00

Pullman, Washington is about 80 miles south of Spokane on U. S. Highway 195. It is served by West Coast Airlines, by Union Pacific and Northern Pacific railroads, and by Greyhound Bus.

Reservations are to be sent to Professor J. R. Vatnsdal, Department of Mathematics, State College of Washington, Pullman, Washington, stating time of arrival, dormitory accommodations required, and number of reservations for the dinner Friday evening.

V. L. Klee, Jr.
Associate Secretary

Seattle, Washington
February 20, 1957

NEWS ITEMS AND ANNOUNCEMENTS

THE BROWN UNIVERSITY DIVISION OF ENGINEERING is offering a number of Research Assistantships, Teaching Assistantships, Fellowships, and Scholarships for the academic year 1957–1958 in the fields of Applied Mechanics, Properties of Materials, and Physical Metallurgy.

Programs of research currently under way include the following: Experimental and theoretical studies of structures and metal parts in the plastic range under static or dynamic loading; three-dimensional photoelastic studies of atomic reactors; research on birefringent coatings of metal parts for photoelastic strain measurements under static or dynamic loads; theoretical and experimental soil mechanics with emphasis on stress-strain relations and solutions to problems; initiation and propagation of brittle fracture; stress waves in metals and plastics; basic research on fatigue failures under combined stress; creep behavior of plastics; research on relationships between time-sensitive mechanical properties of plastics; research on properties of two-phase alloys and sintered carbides; plastic properties under extremely high rates of straining.

Excellent facilities are available for experimental work in the above fields.

Stipends for the academic year for highly qualified Assistants with Bachelor's degree are approximately $2025 plus tuition for three-quarter-time appointments, and approximately $1440 plus tuition for half-time appointments. The corresponding stipends for Assistants holding a Master's degree in an appropriate field are approximately $2300 plus tuition and $1620 plus tuition, for three-quater-time and half-time appointments, respectively. Summer work on a full-time basis for two summer months is available, with proportionate stipend.

Fellowships and a considerable number of *Tuition Scholarships* are available, both permitting full-time study.

General information and application blanks for all appointments may be obtained from the Registrar of the Graduate School. Inquiries concerning the research and study programs may be directed to the Chairman, Division of Engineering.

THE INTERNATIONAL MATHEMATICAL UNION is assisting in sponsoring this summer two colloquia, as follows:

Colloquium on finite groups, to be held in Tübingen, Germany, August 18–24.

Colloquium on analytic functions, to be held in Helsinki, Finland, August 12–18.

AMERICAN PHYSICAL SOCIETY, DIVISION OF FLUID DYNAMICS. The tenth anniversary meeting of the Division of Fluid Dynamics will be held on November 25–27, 1957, at Lehigh University, Bethlehem, Pennsylvania. This meeting will be devoted to several aspects of physics and dynamics of fluids. A final announcement with a deadline for abstracts of papers will appear later. Additional information about the meeting can be obtained from Dr. F. N. Frenkiel, Applied Physics Laboratory, The Johns Hopkins University, Silver Spring, Maryland.

TWELFTH ANNUAL MEETING OF THE ASSOCIATION FOR COMPUTING MACHINERY. On June 19–21, 1957, the Association for Computing Machinery will hold its Twelfth Annual Meeting on the campus of the University of Houston at Houston, Texas. Program will be printed around May 1 and may be obtained by writing Association for Computing Machinery, 1957 Meeting Headquarters, University of Houston, Cullen Boulevard, Houston 4, Texas.

A SYMPOSIUM ON SYSTEMS FOR INFORMATION RETRIEVAL will be held at the Western Reserve University, Cleveland, Ohio on April 15–17, 1957. The sessions will be held at the Masonic Auditorium, 3615 Euclid Avenue, Cleveland 15, Ohio. There will be sessions on the Fundamentals in Systems Design, Semi-Automatic Systems, Coordinated Systems, Systems Using Accounting or Statistical Machines, and Systems Using Computers or Computer-Like Devices. Attendance at the conference will be limited. A registration fee of $25, excluding banquets, is payable in advance or upon registration at the Symposium. Arrangements have been made for exhibit and demonstration of special equipment. Further information can be obtained from Western Reserve University, School of Library Science, Cleveland, Ohio.

THE NATIONAL REGISTER OF SCIENTIFIC AND TECHNICAL PERSONNEL. The Mathematical Sciences Section of this project, which was established in the National Science Foundation Act of 1950, is maintained by the Society at its Headquarters Offices under NSF sponsorship. In the February 1957 issue of the NOTICES, attention was invited to a bulletin which has recently been published by the National Science Foundation which summarizes the information which has so far been gathered in the Register. It was stated there that copies of the completed bulletin are available at the National Science Foundation, Washington 25, D. C. A supply of copies of this bulletin has now been forwarded to the Headquarters Offices of the Society. They are available upon request to the Headquarters Offices.

ACKNOWLEDGMENTS TO REFEREES. At the December 1956 meeting of the Council of the Society in Rochester, New York, the Council authorized the publication in the *NOTICES* of consolidated lists of referees for all mathematical journals which wish to take advantage of this service. The Council requested that two separate lists be published, one for the journals of the American Mathematical Society and the other for all other journals.

Accordingly, here are the two lists, based on information available in the Headquarters Offices of the Society as of February 20, 1957.

The editors of the BULLETIN, the PROCEEDINGS, and the TRANSACTIONS of the American Mathematical Society wish to make grateful acknowledgment of the services rendered by the following persons who refereed papers: S. S. Abhyankar, R. P. Agnew, R. D. Anderson, N. C. Ankeny, Richard Arens, Nachman Aronszajn, Louis Auslander, B. J. Ba I. A. Barnett, R. G. Bartle, P. T. Bateman, R. E. Bellman, R. H. Bing, Garrett Birkhoff, L. M. Blumenthal, W. M. Boothby, A. T. Brauer, H. E. Bray, F. E. Browder, E. H. Brown, R. C. Buck, Eugenio Calabi, A. P. Calderon, Leonard Carlitz, Lamberto Cesari, Abraham Charnes, Sarvadaman Chowla, R. V. Churchill, E. A. Coddington, P. E. Conner, P. F. Conrad, M. L. Curtis, H. T. Davis, P. Davis, M. M. Day, J. C. E. Dekker, W. E. Deskins, J. B. Diaz, J. A. Dieudonné, S. P. Diliberto, R. P. Dilworth, C. L. Dolph, M. D. Donsker, Max Dresden, L. E. Dubins, Nelson Dunford, Ben Dushnik, Meyer Dwass, B. M. Dwork, Albert Edrei, Arthur Erdélyi, Ky Fan, N. J. Fine, Harley Flanders, W. H. Fleming, E. E. Floyd, Evelyn Frank, W. H. Fuchs, P. R. Garabedian, Leonard Gillman, Oscar Goldman, Michael Golomb, J. W. Green, Karl Gruenberg, Felix Haas, D. W. Hall, P. R. Halmos, Philip Hartman, G. A. Hedlund, A. E. Heins, Alex Heller, Melvin Henriksen, I. N. Herstein, C. S. Herz, J. D. Hill, I. I. Hirschman, U. W. Hochstrasser, G. P. Hochschild, Eberhard Hopf, Alfred Horn, C. C. Hsiung, S. T. Hu, Witold Hurewicz, J. I. Igusa, Kenkichi Iwasawa, Nathan Jacobson, Arno Jaeger, Meyer Jerison, R. E. Johnson, B. W. Jones, F. B. Jones, Bjarni Jonsson, R. V. Kadison, Irving Kaplansky, D. Kan, N. D. Kazarinoff, Erwin Kleinfeld, F. L. Kiokemeister, R. J. Koch, E. R. Kolchin, Jacob Korevaar, H. L. Krall, Klaus Krickeberg, H. W. Kuhn, W. T. Kyner, Serge Lang, G. Latta, D. H. Lehmer, Emma Lehmer, Walter Leighton, W. J. LeVeque, J. J. Levin, Norman Levinson, Harry Levy, D. J. Lewis, C. C. Lin, A. E. Livingston, A. J. Lohwater, L. H. Loomis, G. G. Lorentz, R. C. Lyndon, N. H. McCoy, J. E. McLaughlin, S. S. Macintyre, G. R. MacLane, Saunders MacLane, J. S. MacNerney, Wilhelm Magnus, Kurt Mahler, Morris Marden, A. P. Mattuck, Teruhisa Matsusaka, Karl Menger, J. P. Meyer, E. A. Michael, W. H. Mills, Deane Montgomery, E. F. Moore, J. C. Moore, P. S. Mostert,

T. S. Motzkin, Tadasi Nakayama, Zeev Nehari, Albert Nijenhuis, Louis Nirenberg, Ivan Niven, R. Z. Norman, R. R. Otter, Gordon Pall, L. E. Payne, R. P. Peterson, Ralph Phillips, R. S. Pierce, George Piranian, Everett Pitcher, H. Pollard, G. B. Preston, M. H. Protter, Hans Rademacher, G. Y. Rainich, E. D. Rainville, M. O. Reade, P. V. Reichelderfer, W. T. Reid, Irving Reiner, G. de B. Robinson, Hartley Rogers, Alex Rosenberg, M. A. Rosenlicht, Arthur Rosenthal, Edward Rosenthall, A. E. Ross, E. H. Rothe, Hans Samelson, R. L. San Souci, A. C. Schaeffer, R. D. Schafer, I. J. Schoenberg, P. A. Schwerdtfeger, W. R. Scott, W. T. Scott, I. E. Segal, Wladimir Seidel, Atle Selberg, Ernst Snapper, E. H. Spanier, D. C. Spencer, George Springer, N. E. Steenrod, E. M. Stein, Robert Steinberg, Walter Strodt, Michio Suzuki, Olga Taussky, A. E. Taylor, E. Thomas, J. M. Thomas, W. J. Thron, John Todd, A. R. Turquette, W. T. Tutte, R. S. Varga, H. S. Wall, A. D. Wallace, J. L. Walsh, J. A. Ward, H. F. Weinberger, Edwin Weiss, George Whaples, P. A. White, A. L. Whiteman, P. M. Whitman, Hassler Whitney, G. T. Whyburn, D. V. Widder, Albert Wilansky, L. R. Wilcox, Aurel Wintner, F. B. Wright, F. M. Wright, Kentaro Yano, David M. Young, L. C. Young, Oscar Zariski, H. J. Zassenhaus, Daniel Zelinsky, Leo Zippin, Antoni Zygmund.

The editors of the CANADIAN JOURNAL OF MATHEMATICS, the DUKE MATHEMATICAL JOURNAL, the JOURNAL OF THE ASSOCIATION FOR COMPUTING MACHINERY, the MICHIGAN MATHEMATICAL JOURNAL, and MATHEMATICAL TABLES AND OTHER AIDS TO COMPUTATION wish to make grateful acknowledgment of the services rendered by the following persons who have refereed papers during the past two or more years *: W. E. Abbott, A. Abramowitz, C. W. Adams, Ralph P. Agnew, A. A. Albert, F. L. Alt, S. A. Amitsur, D. N. Arden, Richard Arens, E. Artin, Reinhold Baer, Robert Baer, Frederick Bagemihl, E. S. Barnes, S. Beatty, R. Bellman, S. D. Bernardi, R. H. Bing, Garrett Birkhoff, W. A. Blankenship, R. Blum, R. P. Boas, H. F. Bohnenblust, R. C. Booton, Fred Brafman, H. R. Brahana, Alfred Brauer, R. Brauer, F. E. Browder, Bailey Brown, W. P. Brown, R. H. Bruck, Florent Bureau, A. W. Burks, H. Busemann, A. T. Butson, J. M. Cameron, S. G. Campbell, L. Carlitz, H. Cartan, W. C. Carter, C. C. Chevalley, H. E. Chrestensen, W. A. Clark, R. F. Clippinger, A. J. Coleman, W. C. Connor, E. T. Copson, N. A. Court, Morton Curtis, M. L. Curtis, P. C. Curtis, Jr., Donald Darling, Philip Davis, E. T. Davies, J. A. Dieudonné, G. A. Dirac, W. J. Dixon, A. S. Douglas, J. Douglas, Jr., A. C. Downing, M. P. Drazin, G. F. D. Duff, N. Dunford, Ben Dushnik, W. L. Edge, H. G. Eggleston, R. D. Elbourn, Peter Elias, H. W. Ellis, Arthur Erdélyi, Paul Erdös, Ky Fan, L. R. Ford, Sr., J. W. Forrester, G. E. Forsythe, Phyllis Fox, R. H.

* In the case of the Duke Journal, only the 1956 referees are listed.

Fox, K. O. Friedrichs, R. Frucht, Paul R. Garabedian, M. A. Geisler, John Giese, E. N. Gilbert, Leonard Gillman, Wallace Givens, K. Goldberg, J. K. Goldhaber, Malcolm Goldman, Herman H. Goldstine, E. G. Goodwin, E. T. Goodwin, J. A. Green, H. J. Greenberg, M. Hall, Jr., P. R. Halmos, I. Halperin, R. W. Hamming, W. K. Hayman, I. Heller, P. Henrici, Paul Herget, I. N. Herstein, Carl Herz, Edwin Hewitt, D. Higman, T. H. Hildebrandt, J. D. Hill, Einar Hille, I. I. Hirschman, Jr., G. P. Hochschild, Urs Hochstrasser, Joseph L. Hodges, Jr., A. J. Hoffman, B. D. Holbrook, A. S. Householder, A. E. Ingham, Rufus Isaacs, Eugene Isaacson, N. Jacobson, R. D. James, R. L. Jeffery, S. A. Jennings, R. E. Johnson, Burton W. Jones, Bjarni Jonsson, M. L. Juncosa, Mark Kac, S. Kaplan, Wilfred Kaplan, I. Kaplansky, W. Karush, N. D. Kazarinoff, J. L. Kelley, L. M. Kelly, P. W. Ketchum, V. L. Klee, Jr., E. Kleinfeld, Jacob Korevaar, H. L. Krall, E. Kreyszig, C. C. Krieger-Dunaj, H. W. Kuhn, R. S. Lehman, D. H. Lehmer, William J. LeVeque, J. H. Levin, Norman Levinson, H. M. Lieberstein, W. A. J. Luxemburg, Roger C. Lyndon, A. M. Macbeath, C. C. MacDuffee, S. MacLane, H. M. MacNeille, M. S. MacPhail, J. Maranda, Morris Marden, H. L. Mason, G. C. McVittie, Michel A. Melkanoff, N. S. Mendelsohn, Nicholas Metropolis, E. A. Michael, A. N. Milgram, J. C. P. Miller, L. M. Milne-Thomson, D. Montgomery, E. F. Moore, H. Mori, Jurgen Moser, Leo Moser, T. S. Motzkin, D. E. Muller, D. C. Murdoch, F. J. Murray, J. P. Nash, Zeev Nehari, Cecil Nesbitt, B. H. Neumann, Morris Newman, O. M. Nikodym, Ivan Niven, A. Opler, Gordon Pall, W. N. Papian, W. V. Parker, A. J. Perlis, Sam Perlis, R. S. Phillips, Roger S. Pinkham, Edmund Pinney, B. van der Pol, H. O. Pollak, George Pólya, D. A. Pope, Reese Prosser, Richard Rado, Earl D. Rainville, Kenneth Ralston, B. A. Rattray, Maxwell O. Reade, Edgar Reich, Irving Reiner, Ida Rhodes, R. D. Richtmeyer, Abraham Robinson, P. G. Rooney, H. C. Rorden, J. P. Roth, Erich H. Rothe, Walter Rudin, Mary E. Rudin, Hans Rund, D. E. Rutherford, H. Ryser, H. E. Salzer, Hans Samelson, Arthur Sard, S. Schecter, Peter Scherk, I. J. Schoenberg, S. Schuster, H. Schwerfeger, W. W. Seifert, R. G. Selfridge, Daniel Shanks, V. L. Shapiro, I. M. Sheffer, G. C. Shephard, J. R. Shoenfield, Marlow Sholander, I. M. Singer, H. K. Skramstad, M. F. Smiley, Ernst Snapper, J. N. Snyder, T. H. Southard, R. G. Stanton, I. A. Stegun, R. Steinberg, R. L. Sternberg, D. B. Sumner, D. Teichroew, J. M. Thomas, Robert M. Thrall, W. J. Thron, J. A. Todd, Olga Taussky Todd, C. Truesdell, W. T. Tutte, F. M. Verzuh, A. D. Wallace, Wolfgang Wasow, Charles Walmsley, W. J. Webber, H. F. Weinberger, H. Wielandt, J. H. Wilkinson, H. E. Wolfe, Max Wyman, W. J. Youden, David Young, Gail S. Young, Hans Zassenhaus, Leo Zippin.

REDUCED DUES FOR ENLISTED MEN have been in effect for some time. Recently the Treasurer of the Society approved the following operating rules:

A member of the Society who serves as an enlisted man in the armed forces of the United States for all or part of the calendar year is entitled to pay dues of only $1 for that calendar year instead of dues at the full rate, provided that he pays his dues in the period between the receipt of his bill for the calendar year in question and the end of his term of enlistment. (Of course, if he defers payment too long in the calendar year, he will be subject to the usual procedures regarding members who are delinquent in their dues.)

If he pays full dues for the calendar year in question either before or during his term of enlistment, the Society will most gratefully accept the overpayment as a contribution and no rebate will be made.

If he pays his dues for a given calendar year after the term of enlistment ends, he must pay full dues for that calendar year.

Reduced dues will normally be accepted for at most two consecutive years. Thereafter the dues will revert to the regular rate. If a member is mustered out of the armed services but at a later time rejoins them (again as an enlisted man), he will again be entitled to the reduced rate provided that he has paid his dues at the full rate for at least one calendar year preceding the year of his enlistment. The provisions in this paragraph may be waived or modified at the discretion of the Secretary of the Society, to whom an appeal should be made when a member feels that the rules are operating to his disadvantage.

DUES OF PROFESSIONAL ASSOCIATIONS. The National Education Association, Sixteenth Street, Northwest, Washington 6, D.C., has recently completed a survey of the annual dues rates for regular members of 55 national professional associations. The associations included in the sample are those which represent the well-known professions. An effort was made to select large associations and those which maintain a full-time headquarters staff. A news release was sent out in December, 1956 by the NEA, giving the returns from 50 organizations, representing a 91 per cent response. The annual dues of a regular active member of these 50 national associations ranged from a high of $50 to a low of 50 cents. The arithmetic mean annual rate was $13.68. The median annual rate was $10.

The report of the NEA made no attempt to describe the journal privileges which are offered to members free on dues by the various organizations. These may in some cases amount to a very substantial return for

the money paid in by dues. For instance, in the case of the American Mathematical Society (whose dues lie close to the median mentioned above), members receive free of charge a subscription to the *BULLETIN*, the *PROCEEDINGS*, the *NOTICES* and every other year, the *Combined Membership List*. The list prices of subscriptions to these publications total $18, excluding the *Combined Membership List* which is sent out only every other year and for which the list price is $2. Or, optionally, a member of the AMS may substitute *MATHEMATICAL REVIEWS* for the *PROCEEDINGS*, by paying a total of $20, consisting of $14 dues and a $6 premium to dues. The total list price of these privileges is no less than $46, excluding the *Combined Membership List*. The list prices of the journals of the Society approximate closely their respective costs of publication.

"LET NO ONE IGNORANT OF GEOMETRY ENTER HERE". That is a translation of the Greek inscription on the new members' emblem of the American Mathematical Society. The emblem was recently authorized by the Council. The emblem is made from 1/10 10K goldfilled material, with a rim filled with hard blue-fired vitreous enamel. It displays the seal of the Society. The emblem is available with stud and post or as a pin with safety catch. The price is $2 postpaid, including tax. Orders should be sent to the Headquarters Offices of the Society, 190 Hope Street, Providence 6, Rhode Island. Please state which type is wanted when ordering.

A CHANGE OF ADDRESS should be submitted to the Society *at least six weeks before it is to become effective*. Otherwise one or more journals will be sent to the wrong address, and return or forwarding postage must be paid. Each of the journals of the Society is mailed by the printer, from a strip list furnished by the Headquarters Offices.

If a new position goes with the new address, please give full information for the Combined Membership List. Please also advise as to when the new address is to be effective, but (and here is where we came in) please do not say that it is to be effective in less than six weeks!

THE WE'RE SORRY DEPARTMENT. In the February, 1957 issue of the *NOTICES*, an item appeared concerning the research problem section of the *BULLETIN*. It was stated there that all problems intended for publication should be sent to Professor B. J. Pettis at Tulane University. We have now been advised that problems should be sent not to Professor Pettis but to Professor G. B. Price of the University of

Kansas at Lawrence, Kansas.

The following errors appeared in the 1956 *Combined Membership List:*

Professor N. D. Kazarinoff is listed as being Assistant Professor, Purdue University, Lafayette, Indiana with address at 453 Vine Street, West Lafayette, Indiana. The correct information is that he is an Assistant Professor at the University of Michigan, Ann Arbor, Michigan.

Dr. David I. Epstein was confused with a former member named D. I. Epstein who is an engineer with the Arma Corporation. Dr. David I. Epstein's correct listing should be as follows: Dr. David I. Epstein, 1555 Grand Concourse, New York 52, New York.

Miss Janet C. Durand's correct listing should be: Miss Janet C. Durand, 223 West Sedgwick Street, Philadelphia 19, Pennsylvania.

Professor D. H. Ballou of Middlebury College, Middlebury, Vermont was listed as an Associate Professor. He has the rank of Professor.

The *Combined Membership List* for 1956 contains 9,793 names, and in view of the fact that there is about a 35% turnover in addresses every year within the memberships of the cooperating societies, it is not surprising that a few errors should creep into this list. The Headquarters Offices of the Society are trying hard to reduce the number of errors. The Headquarters Offices wish to extend apologies to all those who are erroneously listed in the *1956 Combined Membership List* and will publish corrections in this department of the *NOTICES* as rapidly as possible. However, it will be necessary to restrict the corrections to the deadline date of the *1956 Combined Membership List,* which was October 15, 1956. Changes of address or position which occurred later than that and could not properly have been recorded in the *1956 Combined Membership List* will not be published in the *NOTICES.* In view of the remark made above about the 35% turnover of addresses, it is clear why such a restriction has to be made. These comments may tempt some readers to suggest that a directory should be published more than once a year, but that would be an expensive matter, because the *Combined Membership List* costs over $5,000 a year to prepare and publish.

THE NATIONAL SCIENCE FOUNDATION will receive applications for grants in support of attendance at International Colloquia sponsored by the International Mathematical Union on the following topics: *Finite Groups,* Tübingen, Germany, August 19–24, 1957. *Theory of Functions,* Helsinki, Finland, August 12–18, 1957.

Application blanks will be furnished upon request by the Program

Director for Mathematical Sciences, National Science Foundation, Washington 25, D. C. The closing date for receipt of applications is April 30, 1957. *

INTERNATIONAL CONGRESS OF MATHEMATICIANS. It has been the understanding in the Headquarters Offices of the Society until recently that the dates of this event are August 7–14, 1958. A letter just received from Professor Frank Smithies, the Secretary of the Congress, informs us that the projected dates are now August 14–21, 1958. The Congress is to be held in Edinburgh, Scotland. **

* This item was received too late to go in its regular position in the News Items. An announcement of the Colloquia referred to in this item appears on page 24.

** This item was received too late to go in its regular position in the News Items.

PERSONAL ITEMS

Professor Emeritus George Pólya of Stanford University has recently been elected to Honorary Membership in the London Mathematical Society.

Dr. C. E. Shannon of Bell Telephone Laboratories and Massachusetts Institute of Technology has received the 1956 Research Corporation Award acknowledging his work on information theory, on the basis of electronic computing machines, and on the theory of complex machines. The award consists of $2,500, a plaque and a citation.

Mr. S. B. Akers, Jr. of ACF Electronics has accepted a position as mathematician-engineer with General Electric Company, Syracuse, New York.

Dr. Fred Assadourian of Federal Telecommunications Laboratories, Incorporated, has accepted a position as senior engineer with Radio Corporation of America, New York, New York.

Dr. R. W. Bagley is on leave for one year from Lockheed Aircraft Corporation to work on an operations research project at Stanford University.

Dr. L. C. Barrett of the University of Utah has been appointed to an associate professorship at Arizona State College.

Mr. J. K. Baumgart of the U. S. Army has been appointed to an associate professorship at Manchester College.

Dr. E. K. Blum of the Naval Ordnance Laboratory has accepted a position as a member of the technical staff of Ramo-Wooldridge Corporation, Los Angeles, California.

Assistant Professor P. L. Butzer of McGill University is on leave of absence and has been appointed to a visiting professorship at the University of Mainz, Germany.

Dr. J. O. Carter of Stanford University has accepted a position as applied science representative with International Business Machines Corporation, San Jose, California.

Dr. J. G. Charney of the Institute for Advanced Study has been appointed to a professorship of meteorology at Massachusetts Institute of Technology.

Dr. R. H. Crowell of the Forrestal Research Center has been appointed a lecturer at Massachusetts Institute of Technology.

Assistant Professor A. I. Dhar of Illinois Wesleyan University has been appointed to an assistant professorship at Valparaiso University.

Dr. Olive J. Dunn of the University of California, Los Angeles, has been appointed to an assistant professorship at Iowa State College of Agriculture and Mechanic Arts.

Dr. F. N. Frenkiel of the Applied Physics Laboratory, Johns Hop-

kins University, has been appointed a consultant at the David Taylor Model Basin, Washington, D. C.

Assistant Professor Gerald Harrison of Wayne State University has accepted a position as systems engineer with Teleregister Corporation, Stamford, Connecticut.

Dr. A. D. Hestenes of the National Cash Register Company has accepted a position as a member of the financial staff of General Motors Corporation, Detroit, Michigan.

Dr. J. F. Hedya of General Motors Corporation has accepted a position as mathematician with General Electric Company, Cincinnati, Ohio.

Dr. J. C. Holladay of Yale University has been appointed a staff member of Los Alamos Scientific Laboratory, Los Alamos, New Mexico.

Associate Professor R. C. James of Haverford College has been appointed to a professorship at Harvey Mudd College.

Dr. G. P. Johnson of the University of Minnesota has accepted a position as research mathematician with California Research Corporation, Richmond, California.

Dr. P. J. Koosis of the University of Michigan is a temporary member of the Institute of Mathematical Sciences, New York University.

Dr. W. T. Kyner of Northwestern University is a temporary member of the Institute of Mathematical Sciences, New York University.

Professor G. G. Lorentz of Wayne State University is on leave of absence and has been appointed to a visiting professorship at the University of Michigan.

Mr. R. K. McConnell of New York City has been appointed to an assistant professorship at the University of Rhode Island.

Associate Professor G. D. Mostow of Johns Hopkins University is on leave and is at the Institute for Advanced Study.

Dr. E. C. Paige, Jr. of Maryland has been appointed to an assistant professorship at the University of Illinois.

Mr. S. V. Parter of the Los Alamos Scientific Laboratory is a temporary member of the Institute of Mathematical Sciences, New York University.

Professor H. E. Rauch of the University of Pennsylvania is a temporary member of the Institute of Mathematical Sciences, New York University.

Mr. J. F. Schell of the University of Dayton has accepted a position as research mathematician with the U. S. Air Force at Wright-Patterson Air Force Base, Ohio.

Assistant Professor N. J. Schoonmaker of the University of Massachusetts has been appointed to a professorship at the University of Vermont.

Professor J. A. Schouten of the University of Amsterdam has retired with the title Professor Emeritus.

Professor J. T. Schwartz of Yale University is a temporary member of the Institute of Mathematical Sciences, New York University.

Dr. Soloman Schwartzman of Johns Hopkins University is a temporary member of the Institute of Mathematical Sciences, New York University.

Dr. Paul Slepian of Ramo-Wooldridge Corporation has accepted a position as research physicist with Hughes Research and Development Laboratories, Culver City, California.

Dr. S. Z. Sternberg of Johns Hopkins University is a temporary member of the Institute of Mathematical Sciences, New York University.

Dr. G. P. Weeg of UNIVAC Division, Sperry Rand Corporation, has been appointed to an assistant professorship at Michigan State University.

Mr. A. C. deWilde of Detroit Edison Company has accepted a position as senior project engineer with General Motors, Detroit, Michigan.

Dr. W. D. Wood of the Sandia Corporation has accepted a position as Vice-President of the Dikewood Corporation, Albuquerque, New Mexico.

Mr. D. L. Yarmush of Princeton University has accepted a position as mathematician with Technical Research Group, New York, New York.

Dr. Karl Zeller of Tübingen University is on leave of absence and has been appointed to a visiting associate professorship at Wayne State University.

The following promotions are announced:

J. W. Andrushkiw, Seton Hall University, to a professorship.

Gerald Berman, Illinois Institute of Technology, to an associate professorship.

Charles Fox, McGill University, to a professorship.

L. S. Hill, Hunter College, to a professorship.

Sallie Pence, University of Kentucky, to a professorship.

R. A. Struble, Illinois Institute of Technology, to an associate professorship.

The following appointments to instructorships are announced:

Columbia University: Dr. E. J. Taft; Iowa State College of Agriculture and Mechanic Arts: Dr. R. L. Dunn; University of Leyden: Mr. J. P. Murre; University of Michigan: Dr. J. R. Munkres; Ohio State University: Dr. R. V. Chacon; San Diego State College: Mr. R. L. Shaw.

Deaths:

Mr. R. T. Businger of Pittsburgh, Pennsylvania died on November 11, 1956 at the age of fifty-six years.

Dr. Tobias Dantzig of Pacific Palisades, California, died on August 9, 1956 at the age of seventy-two years. He had been a member of the Society for thirty-seven years.

Dr. John von Neumann of the Institute for Advanced Study and a member of the Atomic Energy Commission died on February 8, 1957 at the age of fifty-four years. He had been a member of the Society for twenty-three years.

Professor J. M. Rankin of the College of Idaho died on June 8, 1956 at the age of sixty-six years. He had been a member of the Society for thirty-four years.

Professor A. C. Schaeffer of the University of Wisconsin died on February 2, 1957 at the age of fifty years. He had been a member of the Society for twenty years.

Mr. R. H. Somers of Pitman, New Jersey, died on January 22, 1957 at the age of seventy-six years.

NEW PUBLICATIONS

Aleksandrow, P. S. *Wstęp do teorii grup.* [Introduction to the theory of groups.] Warsaw, Państwowe Wydawnictwo Naukowe, 1956. 153 pp. 4.70 zł.

Barkhausen, H. *Einführung in die Schwingungslehre, nebst Anwendungen auf mechanische und elektrische Schwingungen.* Leipzig, Hirzel, 1956. 7 + 128 pp. 4.00 DM.

Bericht über die Tagung Wahrscheinlichkeitsrechnung und mathematische Statistik in Berlin, Oktober, 1954. 130 pp. Berlin, Deutscher Verlag der Wissenchaften, 1956.

Carman, P. C. *Flow of gases through porous media.* New York, Academic Press, 1956. 9 + 182 pp. $6.00.

Conference on linear programming, May, 1954. London, Ferranti. 92 pp.

Conti, R. See Sansone, G.

Contributions to the theory of nonlinear oscillations. Vol. 3. (Annals of Mathematics Studies, no. 36.) Princeton University Press, 1956. 7 + 285 pp. $4.00.

Duschek, A. *Vorlesungen über höhere Mathematik.* Vol. I. *Integration und Differentiation der Funktionen einer Veränderlichen, Anwendungen, numerische Methoden, algebraische Gleichungen, unendliche Reihen.* 2d, rev. ed. Vienna, Springer, 1956. 12 + 440 pp.

Gardner, M. *Mathematics, magic and mystery.* New York, Dover, 1956. 12 + 176 pp. $1.00

Goedecke, W. *Mathematische Grundlagen der Wechselstromlehre.* Vol. I. *Anwendungen des symbolischen Rechenverfahrens auf periodische, rein sinusförmige Wechselvorgänge.* 2d ed. Berlin, VEB Verlag Technik, 1956. 120 pp.

Kohn, J. J., and Spencer, D. C. *Complex Neumann problems on Kähler manifolds.* Princeton University, 1956. 115 pp. (mimeographed)

Kruse, A. H. *Introduction to the theory of block assemblages and related topics in topology.* (National Science Foundation Research Project on Geometry of Function Space.) Lawrence, University of Kansas, 1956. 8 + 306 pp.

Kuerti, G. See Oswatitsch, K.

Linear inequalities and related systems. (Annals of Mathematics Studies, no. 38.) Princeton University Press, 1956. 21 + 322 pp. $5.00.

Nolfi, P. *Idee und Wahrscheinlichkeit.* Neuchatel, Griffon, 1956. 215 pp. 15 Swiss fr.

Oswatitsch, K. *Gas dynamics.* English version by G. Kuerti. New York, Academic Press, 1956. 15 + 610 pp. $12.00

Pogorelow, A. W. *Die eindeutige Bestimmung allgemeiner konvexer*

Flächen. Berlin, Akademie-Verlag, 1956. 79 pp. 5.50 DM.

Proceedings of the Third Berkeley Symposium on Mathematical Statistics and Probability, 1954–1955. Berkeley and Los Angeles, University of California Press, 1956. Vol. I, 9 + 208 pp., $6.00. Vol. II, 9 + 246 pp., $6.50. Vol. III, 9 + 252 pp., $6.25. Vol. IV, 9 + 179 pp., $5.75. Vol. V, 9 + 184 pp., $5.75.

Sansone, G., and Conti, R. *Equazioni differenziali non lineari.* Rome, Cremonese, 1956. 19 + 647 pp. 7500 Lire.

Schäffer, J. J. *Contributions to the theory of electrical circuits with non-linear elements.* Assen, Van Gorcum, 1956. 6 + 95 pp.

Spencer, D. C. See Kohn, J. J.

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Supplement No. 1

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The following item announced in the December 1956 *Notices* is no longer available:

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